What is claimed is:

1.   An apparatus for controlling audio noise attenuation by monitoring a buffer, the apparatus including a loudspeaker reproducing an audio signal, the apparatus comprising:

audio data storing means for storing audio data to be reproduced;

D/A converting means for converting the audio data stored in the storing means to an analog signal;

switching means for switching connection between the D/A converting means and the loudspeaker according to a switching control signal;

time setting means for setting a time until the audio data stored in the storing means is completely outputted and outputting a timer flag signal according to variation of the set time; and

output control means for outputting a switching control signal to the switching means according to a timer flag signal outputted from the time setting means and a user flag signal set by a user.

2.   The apparatus as claimed in claim 1, wherein the switching means is at least one selected from a plurality of switching elements, a multiplexer, and a demultiplexer.

3.   The apparatus as claimed in claim 1, wherein the time setting means generates the timer flag signal if the audio data to be outputted is in the storing means, and does not generate the timer flag signal if no the audio data to be outputted is in the storing means.

4.   The apparatus as claimed in claim 1, wherein the switching means a) operates the loudspeaker by outputting the switching control signal to the switching means to connect the D/A converting means and the loudspeaker, if the user flag is not set, and b) operates the

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loudspeaker by outputting the switching control signal to the switching means, if the timer flag signal is generated and the user flag is set.

5. The apparatus as claimed in claim 1, wherein the storing unit comprises:

a plurality of data buffers which are identical in sizes thereof, each of the data buffers storing the audio data having a same size as the others;

a head pointer indicating one of the data buffers which stores the oldest data, and outputting the audio data stored in the corresponding buffer to the D/A converting means; and

a tail pointer indicating one of the data buffers which stores the latest data.

6. The apparatus as claimed in claim 1, wherein the time setting means comprises:

a real time clock generating unit for generating a clock every a certain period;

an initial set time value storing unit for storing a time value until all of the audio data stored in one of the data buffers of the storing means is transferred to the D/A converting means;

an effective time storing unit for a) calling an initial time value stored in the initial set time value storing unit and storing the called time as an effective time value, and b) periodically calling the stored effective time value according to the period of the clock generated in the real time clock generating unit, and if the stored value is more than 0, subtracting a time corresponding to a called period, and outputting a flag control signal; and

a timer flag generating unit for generating unit for generating a timer flag signal according to the flag generating control signal outputted from the effective time value storing unit.

7. The apparatus as claimed in claim 1, wherein the switching control means

comprises:

an AND gate for operating the timer flag signal outputted from the timer flag generating means of the time setting means and a user flag signal provided from a user;

an inverter for inverting the user flag signal set by the user; and

5   an OR gate for operating a signal inputted from the inverter and a signal inputted from the AND gate to output the resultant value to the switching means.

8.   A method for controlling audio noise attenuation by monitoring a buffer, the method comprising the steps of:

10   sequentially storing inputted audio data in same size thereof in plurality of data buffers each having a same size as the others;

sequentially converting the audio data stored in each data buffer to an analog signal;

setting a timer whenever the audio data stored in each buffer is outputted, periodically reducing a time value stored in the timer by a time period according to a real

15   time clock provided by the set timer, and generating a timer flag signal according to a time of the reduced timer; and

controlling operation of a loudspeaker according to the generated timer flag signal and a user flag signal set by a user.

20   9.   The method as claimed in claim 8, wherein the step of generating the timer flag signal generates the timer flag signal, if a residual time of the timer is above "0", and no generates the timer flag signal if the residual time of the timer is below "0".

10.   The method as claimed in claim 8, wherein the step of controlling operation of the

25   loudspeaker comprises the steps of:

OR operating the timer flag signal and the user flag signal set by the user;

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Inverting the user flag signal set by the user and outputting the inverted signal; and

AND operating the inverted signal of the user flag signal and the OR operated signal, and controlling the operation of the loudspeaker according to the resultant value.

5   11.   The method as claimed in claim 8, wherein the step of controlling operation of the loudspeaker comprises the steps of:

determining whether the user flag is set by the user and the timer flag signal is generated;

operating the loudspeaker, if the user flag is not set, or if the user flag is not set and

10   the timer flag signal is generated; and

interrupting the loudspeaker, if the user flag is set, and the timer flag signal is not generated.

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